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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,396	08/15/2000	Philippe Daniel	M-8390US	1471

33031 7590 10/23/2003

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EXAMINER	
MOORE JR, MICHAEL J	

ART UNIT	PAPER NUMBER
2666	7

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/639,396	DANIEL ET AL.	
	Examiner	Art Unit	
	Michael J Moore, Jr.	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *15 August 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 August 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims **1-4 and 9-19** are rejected under 35 U.S.C. 102(e) as being anticipated by Nathan et al. (U.S. 6,295,146). See Figure 3 of the Nathan et al. reference. The Nathan et al. reference discloses all of the limitations of the listed claims for the reasons that follow.

Regarding claim **1,** the disclosed limitation is a system comprising a first ring network, a second ring network, and a network element coupled to both of these networks. This network element monitors frames received from these two ring networks for indications of network failure. Column 4 and Figure 3 of the Nathan et al. reference

anticipate this limitation. Nathan et al. discloses an optical communications system containing a first optical ring network 202 and a second optical ring network 204 in column 4, lines 11-12. Two optical cross-connect switches (elements 308 and 312 of Fig. 3) and two controllers (elements 306 and 310 of Fig. 3) couple this two-ring network. These controllers have means for receiving failure indications from the elements of both ring networks.

Regarding claim **2,** the system using SONET frames is anticipated by the SONET network disclosed by the Nathan et al. reference. Refer to column 2, lines 14-19. Nathan et al. discloses a self-healing, optical (SONET) network that provides more efficient use of spare channels.

Regarding claim **3,** the first ring network and second ring network being SONET Bi-directional Line Switched Ring (BLSR) networks is anticipated by Figure 3 of the Nathan et al. reference. This figure shows a two-ring SONET network that transmits frames bi-directionally with network elements 300 coupling the two rings. This network element along with the other nodes use line switching to combat ring network failures and reroute SONET frames.

Regarding claim **4,** the disclosed limitation is a method of supporting a plurality of ring networks in a single network element. This method includes receiving frames from the plurality of ring networks, monitoring these frames for indications of failure in one network, detecting this ring network failure, determining the failing ring network, and then rerouting the frames of the failing ring network. The abstract as well as Figure 3 of the Nathan et al. reference anticipate this limitation. Nathan et al. discloses a method

whereby two optical switching units, which are optically coupled to two or more optical ring networks, monitor incoming frames and detect ring network failures. When a failure indication is received, an optical switching unit (elements 305 and 307 of Fig. 3) handles the rerouting of the affected frames onto a spare channel.

Regarding claim **9,** the plurality of ring networks being SONET BLSR networks is anticipated by Figure 3 of the Nathan et al. reference. This figure shows a two-ring SONET network that transmits frames bi-directionally with a network element coupling the two rings. This network element along with the other nodes use line switching to combat ring network failures and reroute SONET frames. This figure constitutes a plurality of ring networks utilizing SONET BLSR methods.

Regarding claim **10,** the disclosed limitation is a method for supporting multiple ring networks in a single network element. This method includes receiving frames from a first and a second ring network, transporting the information from the frame of the said first ring network to a cross-connect device, and processing the said information if an indication of failure is detected in the said first ring network. Column 2, lines 45-63 as well as Figure 3 of the Nathan et al. reference anticipate this limitation. Nathan et al. discloses a method whereby two optical switching units, which are optically coupled to two or more optical ring networks, monitor incoming frames and detect ring network failures. When a failure is sensed by any network element, a data message is sent indicating the failure to an optical switching unit (elements 305 and 307 of Fig. 3). These optical switching units consist of an optical cross-connect switch (elements 308

and 312 of Fig. 3) and a switch controller (elements 306 and 310 of Fig. 3) that handle the rerouting of the affected frames onto a spare channel.

Regarding claim **11**, the information-processing step of claim **10** being in accordance with the Automatic Protection Switching protocol is anticipated by column 1, lines 38-46 of the Nathan et al. reference. When a failure indication is detected, an alarm indication is sent to a central network management system and the affected traffic is then switched onto a spare channel using loopback protection switching. This loopback protection switching is in accordance with the Automatic Switching protocol.

Regarding claim **12**, the first and second ring networks being SONET BLSR networks is anticipated by Figure 3 of the Nathan et al. reference. This figure shows a two-ring SONET network that transmits frames bi-directionally with a network element coupling the two rings. This network element along with the other nodes use line switching to combat ring network failures and reroute SONET frames. This figure constitutes a multiple of ring networks utilizing SONET BLSR methods.

Regarding claim **13**, the disclosed limitation is a computer-readable medium comprising computer-readable program code for causing a network element to receive frames from a first and a second ring network. This code also causes the network element to detect a failure in the first ring network and process the failure. The switching tables of the Nathan et al. reference anticipate this limitation. Refer to Figures 4, 6A, and 6B. These figures illustrate a switching table stored in system memory that is used to route information and detect failure conditions within the ring networks.

Regarding claim **14**, the medium of claim **13** with the first and second ring networks being SONET networks is anticipated by the SONET ring network disclosed by the Nathan et al. reference. Column 2, lines 14-19 describe a self-healing optical network that retains the speed and simplicity of a self-healing SONET network while providing more efficient spare channel use.

Regarding claim **15**, the medium of claim **13** with the first and second ring networks being SONET BLSR networks is anticipated by Figure 3 of the Nathan et al. reference. This figure shows a two-ring SONET network that transmits frames bi-directionally with a network element coupling the two rings. This network element along with the other nodes use line switching to combat ring network failures and reroute SONET frames. This figure constitutes a two-ring network utilizing SONET BLSR methods.

Regarding claim **16,** the disclosed limitation is a network element composed of a first and a second line interface coupled to a first and second ring network, respectively. The network element also contains a cross-connect device that uses a computer program for network monitoring. This computer program monitors information sent from the first and second ring networks for indications of failure. Figures 3, 4, 6A, and 6B anticipate this limitation. Figure 4 of Nathan et al. shows an optical cross-connect switch controller 306 that contains a data network interface 412 for connecting the controller to a ring network channel. Figure 3 shows the controllers 306 and 310 coupled to network elements K, A, G, and F using these interfaces. Figure 3 also shows optical cross-connect switches 308 and 312 that perform the frame rerouting

operation. Figures 6A and 6B show switching tables that receive information from the ring networks regarding channel status. These tables are used by the optical cross-connect switch controllers to determine indicators of network failure and take appropriate action. Based upon the information in these tables, the controllers will control the optical cross-connect switches accordingly.

Regarding claim **17,** the first and second ring networks being SONET BLSR networks is anticipated by Figure 3 of the Nathan et al. reference. This figure shows a two-ring SONET network that transmits frames bi-directionally with a network element coupling the two rings. This network element along with the other nodes use line switching to combat ring network failures and reroute SONET frames. This figure constitutes two ring networks utilizing SONET BLSR methods.

Regarding claim **18,** the disclosed limitation is a network element comprising a means for receiving a frame from both a first and a second ring network along with a means for monitoring information for indications of network failure in the first or the second ring network. Figure 3 of the Nathan et al. reference anticipates this limitation. Figure 3 shows the optical switching units 305 and 308, which are used to receive frames from two or more ring networks. These units are also responsible for monitoring information regarding indications of network failure.

Regarding claim **19,** the first and second ring networks being SONET BLSR networks is anticipated by Figure 3 of the Nathan et al. reference. This figure shows a two-ring SONET network that transmits frames bi-directionally with a network element coupling the two rings. This network element along with the other nodes use line

switching to combat ring network failures and reroute SONET frames. This figure constitutes two ring networks utilizing SONET BLSR methods.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims **5, 6, 7,** and **8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nathan et al. (U.S. 6,295,146) in view of Wu (U.S. 5,442,623).

Regarding claims **5, 6,** and **7,** the Nathan et al. reference does not disclose that detecting a failure is accomplished by reading an overhead section of a SONET STS, which includes the SONET STS K-bytes. However, Wu teaches in column 4, lines 9-29 how in one SONET protection switching protocol (ANSI TIX1.5 Standard), the K1 and K2 overhead bytes are used for relaying protection switching messages in the event of a network failure. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to make use of K1 and K2 overhead bytes of a SONET STS in order to provide automatic protection switching so that a network failure can be avoided. This motivation is disclosed in column 4, lines 9-11 of the Wu reference.

Regarding claim **8**, the Nathan et al. reference does not disclose that the method of claim **7** is in accordance with the Automatic Protection Switching (APS) protocol. However, Wu teaches in column 4, lines 9-29 that a self-healing

network indicates a request for a certain type of protection switching by making use of the K1 and K2 overhead bytes of a SONET STS. This protection switching (loopback, span, etc.) conforms to the Automatic Protection Switching protocol. Therefore, the method of claim **7** implies that the APS protocol is being complied with.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Both Taniguchi (U.S. 5,661,720) and Lecoutre (U.S. 6,532,238) disclose methods of connecting multiple ring networks by sharing a node.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J Moore, Jr. whose telephone number is (703) 305-8703. The examiner can normally be reached on 8:30am - 5:00pm (Monday-Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Seema S. Rao
SEEMA S. RAO 10/16/03
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

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